Supporting Information

A Convenient Synthesis of Tetrasubstituted Pyrazoles from Nitrile Imines and 2-(Thioxothiazolidin-5-ylidene)acetates

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Figure 1. Molecular structure and numbering scheme of (3f); the thermal ellipsoids are drawn at the 50% probability level. Hydrogen atoms are omitted for clarity. Selected bond lengths [Å] and angles [°].

Table. Crystal data and structure refinement for 3f

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<td>Index ranges</td>
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Reflections collected 15643
Independent reflections 3914 [R(int) = 0.2365]
Completeness to theta = 24.996° 100.0 %
Absorption correction Integration
Max. and min. transmission 0.9947 and 0.974
Refinement method Full-matrix least-squares on F²
Data / restraints / parameters 3914 / 293 / 296
Goodness-of-fit on F² 0.646
Final R indices [I>2sigma(I)] R1 = 0.0499, wR2 = 0.0976
R indices (all data) R1 = 0.1792, wR2 = 0.1248
Extinction coefficient 0.0136(7)
Largest diff. peak and hole 0.196 and -0.184 e. Å⁻³

General Information

X-Ray Crystal-Structure Determination of 3f: The X-ray diffraction measurement was carried out on STOE IPDS 2T diffractometer with graphite-monochromated MoKα radiation. The single crystal suitable for X-ray analysis was obtained from DMSO solution and mounted on a glass fiber and used for data collection. Compound 3f is crystallized at monoclinic crystal system and P 21/n Space group. For the unit cell a = 10.1360 Å, b = 16.8620 Å, c = 14.6970 Å, Beta = 109.470°, Z = 4, cell volume = 2368.3(9) Å³ and orientation matrixes for data collection were obtained by least-square refinement of the diffraction data from 3400 reflections for compound 3f. Diffraction data were collected in a series of ω scans in 1° oscillations and integrated using the Stoe X-AREA software package.¹ Numerical absorption correction was applied using X-Red32 software. The structure was solved by direct methods and subsequent difference Fourier maps and then refined on F² to final R1 = 0.0497 and wR2 (all data) = 0.0866 by a full-matrix least-squares procedure using anisotropic displacement parameters. Atomic factors are from the International Tables for X-ray Crystallography. All non-hydrogen atoms were refined with anisotropic displacement
parameters. Hydrogen atoms were placed in ideal positions and refined as riding atoms with relative isotropic displacement parameters. All refinements were performed using the X-STEP32, SHELXL-2014 and WinGX-2013.3 programs. CCDC-1584414 contains the supplementary crystallographic data for compound (3f) in this paper. These data can be obtained free of charge from The Cambridge Crystallographic Data Centre via www.ccdc.cam.ac.uk/data_request/cif.

General procedure for the preparation of compounds 3a-k

Typical procedure for preparation of compounds 3. A mixture of hydrazonoyl chloride derivative 1 (1 mmol) and Et₃N (0.101 g, 1 mmol) in MeCN (5 mL) was stirred at r.t. for 15 min. Then, rhodanine derivatives 2 (1 mmol) were added to the above mixture, and the reaction was stirred at r.t. for 3 h. After completion of the reaction (the progress of the reaction was followed by TLC), the solvent was removed under reduced pressure. The crude residue was purified by column chromatography (silica gel 230–400 mesh; Merck, n-hexane/AcOEt 3:1) to give the product 3a-k.

Methyl 5-(isobutylcarbamoyl)-1,3-diphenyl-1H-pyrazole-4-carboxylate (3a): Colorless powder, m.p.: 181 °C; yield: 0.34 g (90%). IR (KBr) (νmax, cm⁻¹): 3300, 3057, 2954, 2871, 1720, 1650, 1552, 1269, 761, 692. ¹H NMR (500 MHz, CDCl₃): δH = 0.93 (6 H, d, 3J = 6.0 Hz, Me), 1.86 (1 H, m, CH), 3.22 (2 H, t, 3J = 5.0 Hz, CH₂), 3.77 (3 H, s, Me), 7.42–7.48 (5 H, m, Ar), 7.49 (1 H, t, 3J = 5.0 Hz, NH), 7.55–7.58 (3 H, m, Ar), 7.64 (2 H, t, 3J = 7.8 Hz, Ar). ¹³C NMR (125.7 MHz, CDCl₃): δC = 20.0 (Me), 28.2 (CH), 47.4 (CH₂), 51.9 (Me), 111.4 (C), 124.8 (2 CH), 127.9 (2 CH), 128.6 (CH), 128.7 (CH), 128.9 (2 CH), 129.1 (2
CH), 132.2 (C), 139.9 (C), 140.4 (C), 153.0 (C=N), 159.3 (C=O), 164.7 (C=O). MS: m/z (%): 377 (M⁺, 1), 318 (8), 305 (10), 274 (22), 218 (25), 100 (23), 72 (100), 59 (23). Anal. Calcd for C₂₂H₂₃N₃O₃ (377.44): C, 70.01; H, 6.14; N, 11.13%. Found: C, 70.10; H, 6.23; N, 11.22%.

Methyl 5-(benzylcarbamoyl)-3-(4-chlorophenyl)-1-phenyl-1H-pyrazole-4-carboxylate (3b): Colorless powder, m.p.: 159 °C; yield: 0.39 g (88%). IR (KBr) (νmax, cm⁻¹): 3416, 3280, 2926, 1721, 1653, 1559, 695. ¹H NMR (500 MHz, CDCl₃): δH = 3.69 (3 H, s, Me), 4.55 (2 H, d, ³J = 5.1 Hz), 7.23 (2 H, d, ³J = 7.9 Hz, Ar), 7.28 - 7.33 (3 H, m, Ar), 7.38 (2 H, d, ³J = 8.5 Hz, Ar), 7.43 - 7.46 (3 H, m, Ar), 7.52 (2 H, t, ³J = 7.9 Hz, Ar), 7.58 (2 H, d, ³J = 8.5 Hz, Ar), 7.79 (1 H, t, ³J = 5.1 Hz, NH). ¹³C NMR (125.7 MHz, CDCl₃): δC = 43.4 (CH₂), 51.4 (CH₃), 111.4 (C), 124.0 (2 CH), 127.1 (CH), 127.4 (2 CH), 127.7 (2 CH), 128.2 (2 CH), 128.4 (CH), 128.6 (2 CH), 130.1 (C), 130.2 (2 CH), 134.3 (C), 136.7 (C), 138.9 (C), 140.0 (C), 151.5 (C=N), 158.7 (C=O), 163.5 (C=O). MS: m/z (%): 445 (M⁺, 1), 386(9), 354 (50), 339 (8), 134 (70), 106 (100), 91 (25), 77 (10), 59 (4). Anal. Calcd for C₂₅H₂₀ClN₃O₃ (445.12): C, 67.34; H, 4.52; N, 9.42%. Found: C, 67.41; H, 4.60; N, 9.52%.
Ethyl 5-(benzylcarbamoyl)-3-(4-chlorophenyl)-1-phenyl-1H-pyrazole-4-carboxylate (3c): Colorless powder; m.p.: 167 °C; yield: 0.42 g (91%). IR (KBr) (νmax, cm⁻¹): 3415, 3278, 2920, 2855, 1723, 1652, 1559, 694. ¹H NMR (500 MHz, CDCl₃): δH = 1.15 (3 H, t, ³J = 7.1 Hz, Me), 4.19 (2 H, q, ³J = 7.1 Hz, CH₂), 4.54 (2 H, d, ³J = 5.1 Hz, CH₂), 7.23 (2 H, d, ³J = 8.0 Hz, Ar), 7.27-7.33(3 H, m, Ar), 7.37 (2 H, d, ³J = 8.5 Hz, Ar), 7.43-7.47 (3 H, m, Ar), 7.51 (2 H, t, ³J = 7.9 Hz, Ar), 7.57 (2 H, d, ³J = 8.5 Hz, Ar), 7.79 (1 H, t, ³J = 5.1 Hz, NH). ¹³C NMR (125.7 MHz, CDCl₃): δC = 13.3 (CH₃), 43.4 (CH₂), 60.8 (CH₂), 111.4 (C), 124.2 (2 CH), 127.1 (CH), 127.3 (2 CH), 127.6 (2 CH), 128.2 (2 CH), 128.4 (CH), 128.6 (2 CH), 130.1 (C), 130.2 (2 CH), 134.3 (C), 136.7 (C), 139.1 (C), 139.8 (C), 151.4 (C=N), 158.6 (C=O), 163.2 (C=O). MS: m/z (%) = 459 (M⁺, 1), 386(9), 368 (50), 356 (8), 252 (70), 106 (100), 91 (25), 77 (10). Anal. Calcd for C₂₆H₂₂ClN₃O₃ (459.14): C, 67.90; H, 4.82; N, 9.14%. Found: C, 68.01; H, 4.90; N, 9.25%.

Ethyl 3-(4-chlorophenyl)-1-phenyl-5-((1-phenylethyl)carbamoyl)-1H-pyrazole-4-carboxylate (3d): Colorless powder, m.p.: 164 °C; yield: 0.40 g (85%). IR (KBr) (νmax, cm⁻¹): 3410, 3278, 3064, 2920, 2855, 1723, 1652, 1559, 694. ¹H NMR (500 MHz, CDCl₃): δH = 1.15 (3 H, t, ³J = 7.1 Hz, Me), 4.21 (2 H, q, ³J = 5.0 Hz, CH₂), 5.21 (1 H, quin, ³J = 6.9 Hz, CH), 7.26 (2 H, d, ³J = 7.9 Hz, Ar), 7.30 -7.33(3 H, m, Ar), 7.38 (2 H, d, ³J = 8.5 Hz, Ar), 7.41-7.42 (3 H, m, Ar), 7.48 (2 H, t, ³J = 7.9 Hz, Ar), 7.57 (2 H, d, ³J = 8.5 Hz, Ar), 7.77 (1 H, d, ³J = 5.0 Hz, NH). ¹³C NMR (125.7 MHz, CDCl₃): δC = 13.7 (Me), 21.6 (Me), 49.6 (CH), 61.3 (CH₂), 111.8 (C), 124.7 (2 CH), 126.2
(2 CH), 127.4 (CH), 128.1 (2 CH), 128.6 (2 CH), 128.8 (CH), 129.0 (2 CH), 130.6 (2 CH), 130.7 (C), 134.7 (C), 139.5 (C), 140.3 (C), 142.4 (C), 152.0 (C=N), 158.3 (C=O), 163.9 (C=O). MS: \( m/z \) (%) = 473 (\( M^+ \), 1), 428 (20), 368(9), 353 (50), 325 (8), 148 (70), 120 (100), 105 (25). Anal. Calcd for \( \text{C}_{26}\text{H}_{22}\text{ClN}_3\text{O}_3 \) (473.15): C, 68.42; H, 5.10; N, 8.87%. Found: C, 68.50; H, 5.21; N, 8.95%.

Methyl 5-(benzylcarbamoyl)-3-(3-chlorophenyl)-1-phenyl-1H-pyrazole-4-carboxylate (3e): Colorless powder, m.p.: 108 °C; yield: 0.38 g (86%). IR (KBr) (\( \nu \), cm\(^{-1} \)): 3413, 3281, 2924, 2853, 1723, 1652, 1560, 694. \(^1\)H NMR (500 MHz, CDCl\(_3\)): \( \delta_H = 3.69 \) (3 H, s, Me), 4.55 (2 H, \( d, ^3J = 5.1 \) Hz), 7.24 (2 H, \( d, ^3J = 8.0 \) Hz, Ar), 7.28 -7.34(3 H, m, Ar), 7.35 -7.39(2 H, m, Ar), 7.45-7.48 (3 H, m, Ar), 7.52-7.55 (3 H, m, Ar), 7.63 (1 H, \( t, ^3J = 5.1 \) Hz, NH), 7.65 (1 H, s, Ar). \(^{13}\)C NMR (125.7 MHz, CDCl\(_3\)): \( \delta_C = 43.4 \) (CH\(_2\)), 51.5 (Me), 111.5 (C), 124.0 (2 CH), 125.3 (CH), 126.9 (CH), 127.2 (CH), 128.2 (2 CH), 128.4 (2 CH), 128.6 (2 CH), 129.4 (CH), 129.7 (CH), 129.9 (CH), 133.7 (C) 133.8 (C), 137.2 (C), 139.4 (C), 140.4 (C), 151.7 (C=N), 159.1 (C=O), 164.0 (C=O). MS: \( m/z \) (%) = 445 (\( M^+ \), 1), 370(9), 281 (50), 182 (8), 143 (70), 106 (100), 91 (25), 77 (10), 43 (4). Anal. Calcd for \( \text{C}_{25}\text{H}_{20}\text{ClN}_3\text{O}_3 \) (445.12): C, 67.34; H, 4.52; N, 9.42%. Found: C, 67.41; H, 4.60; N, 9.52%.
Methyl 5-(benzylcarbamoyl)-1-phenyl-3-(p-tolyl)-1H-pyrazole-4-carboxylate (3f):

Colorless powder, m.p.: 146 °C; yield: 0.35 g (83%). IR (KBr) ($\nu_{\text{max}}$, cm$^{-1}$): 3438, 3208, 2950, 1727, 1646, 1576, 693. $^1$H NMR (500 MHz, CDCl$_3$): $\delta$H = 2.42 (3 H, s, Me), 3.71 (3 H, s, Me), 4.57 (2 H, $^3$$J$ = 5.1 Hz, CH$_2$), 7.23 (2 H, $^3$$J$ = 7.9 Hz, Ar), 7.26 (2 H, $^3$$J$ = 8.1 Hz, Ar), 7.29-7.36 (3 H, m, Ar), 7.45-7.49 (3 H, m, Ar), 7.53 (2 H, $^3$$J$ = 8.1 Hz, Ar), 7.56 (2 H, $^3$$J$ = 8.5 Hz, Ar), 7.66 (1 H, $^3$$J$ = 5.1 Hz, NH). $^{13}$C NMR (125.7 MHz, CDCl$_3$): $\delta$C = 21.5 (Me), 44.0 (CH$_2$), 52.1 (Me), 111.3 (C), 124.7 (2 CH), 127.7 (CH), 128.0 (2 CH), 128.8 (4 CH), 128.9 (CH), 129.1 (2 CH), 129.2 (2 CH), 134.7 (C), 137.4 (C), 138.7 (C), 139.7 (C), 140.2 (C), 153.3 (C=N), 159.5 (C=O), 164.6 (C=O). MS: $m/z$ (%) = 425 ($M^+$, 1), 394 (9), 334 (50), 319 (8), 232 (70), 106 (100), 91 (25), 77 (10), 59 (4). Anal. Calcd for C$_{26}$H$_{23}$N$_3$O$_3$ (425.17): C, 73.39; H, 5.45; N, 9.88%. Found: C, 73.71; H, 5.43; N, 9.94%.

Methyl 5-(benzylcarbamoyl)-3-(2-chlorophenyl)-1-phenyl-1H-pyrazole-4-carboxylate (3g):

Colorless powder, m.p.: 149 °C; yield: 0.38 g (87%). IR (KBr) ($\nu_{\text{max}}$, cm$^{-1}$): 3427, 3227, 3071, 2950, 1722, 1647, 1579, 750, 694. $^1$H NMR (500 MHz, CDCl$_3$): $\delta$H = 3.65 (3 H, s, Me), 4.61 (2 H, $^3$$J$ = 5.0 Hz, CH$_2$), 7.29-7.35 (4 H, m, CH$_2$), 7.36-7.39 (3 H, m, Ar), 7.46-7.52 (5 H, m, Ar), 7.54-7.56 (2 H, m, Ar), 8.55 (1 H, $^3$$J$ = 5.0 Hz, NH). $^{13}$C NMR (125.7 MHz, CDCl$_3$): $\delta$C = 44.0 (CH$_2$), 52.3 (Me), 111.5 (C), 125.1 (2 CH), 126.7 (CH), 127.7 (CH), 128.1 (2 CH), 128.8(2 CH), 128.9 (CH), 129.1 (2 CH), 129.3 (CH), 130.0 (CH), 131.5 (CH), 132.1 (C), 133.9 (C), 136.6 (C), 137.5 (C), 139.2 (C), 153.2 (C=N), 158.7 (C=O),164.6 (C=O). MS: $m/z$ (%) = 445 ($M^+$, 1), 389 (11), 311 (9), 252 (25), 134
Methyl 3-(4-chlorophenyl)-5-(isobutylcarbamoyl)-1-phenyl-1H-pyrazole-4-carboxylate (3h): Colorless powder, m.p.: 187 °C; yield: 0.37 g (90%). IR (KBr) (νmax, cm⁻¹): 3438, 3208, 3064, 2950, 1726, 1646, 1576, 1278, 693. ¹H NMR (500 MHz, CDCl₃): δH = 0.92 (6 H, d, ³J = 6.7 Hz, Me), 1.81-1.89 (1 H, m, CH), 3.22 (2 H, t, ³J = 4.9 Hz, CH₂), 3.78 (3 H, s, Me), 7.41 (2 H, d, ³J = 8.5 Hz, Ar), 7.45-7.49 (3 H, m, Ar), 7.50 (1 H, t, ³J = 4.9 Hz, NH), 7.55 (2 H, d, ³J = 8.5 Hz, Ar), 7.59 (2 H, d, ³J = 8.5 Hz, Ar). ¹³C NMR (125.7 MHz, CDCl₃): δC = 20.2 (Me), 28.3 (CH), 47.4 (CH₂), 52.2 (Me), 111.3 (C), 124.7 (2 CH), 128.3 (2 CH), 129.1 (CH), 129.2 (2 CH), 130.6 (2 CH), 130.7 (C), 134.9(C), 139.7 (C), 140.8 (C), 154.1 (C=N), 159.3 (C=O), 164.5 (C=O). MS: m/z (%) = 411 (M⁺, 1), 339 (11), 311 (13), 300 (21), 252 (10), 100 (50), 72 (100), 59 (44). Anal. Calcd for C₂₂H₂₂ClN₃O₃ (411.13): C, 64.15; H, 5.38; N, 10.20%. Found: C, 64.25; H, 5.50; N, 10.32%.

Ethyl 5-((4-chlorobenzyl)carbamoyl)-3-(4-chlorophenyl)-1-phenyl-1H-pyrazole-4-carboxylate (3i): Colorless powder, m.p.: 173 °C; yield: 0.38 g (78%). IR (KBr) (νmax, cm⁻¹): 3421, 3295, 1711, 1651, 1550, 1175, 838, 689. ¹H NMR (500 MHz, CDCl₃): δH = 1.17
(3 H, t, $^3J = 7.1$ Hz, Me), 4.22(2 H, q, $^3J = 7.1$ Hz, CH$_2$), 4.54 (2 H, d, $^3J = 5.1$ Hz, CH$_2$), 7.19 (2 H, d, $^3J = 8.4$ Hz, Ar), 7.29(2 H, d, $^3J = 8.4$ Hz, Ar), 7.40 (2 H, d, $^3J = 8.4$ Hz, Ar), 7.46-7.49 (3 H, m, Ar), 7.51 (2 H, t, $^3J = 7.8$ Hz, Ar), 7.58 (2 H, d, $^3J = 8.4$ Hz, Ar), 8.11(1 H, t, $^3J = 5.1$ Hz, NH). $^{13}$C NMR (125.7 MHz, CDCl$_3$): $\delta$C = 13.9 (CH$_3$), 43.3 (CH$_2$), 61.6 (CH$_2$), 111.3 (C), 124.9 (2 CH), 128.2 (2 CH), 128.9 (2 CH), 129.1 (CH), 129.2(2 CH), 129.3 (2 CH), 130.7 (2 CH), 130.8 (C), 134.9 (C), 136.0 (C), 139.7 (C), 140.0 (C), 150.8 (C), 151.2 (C), 159.2 (C), 164.3 (C). MS: m/z (%) = 493 ($M^+$, 1), 448 (6), 420 (10), 353 (22), 309 (25), 252 (10), 140 (100), 125 (50), 73 (41), 45 (22). Anal. Calcd for C$_{26}$H$_{23}$Cl$_2$N$_3$O$_3$ (493.10): C, 63.17; H, 4.28; N, 8.50%. Found: C, 63.24; H, 4.37; N, 8.61%.

**Methyl 5-(benzylcarbamoyl)-3-(4-nitrophenyl)-1-phenyl-1H-pyrazole-4-carboxylate** (3j):
Colorless powder, m.p.: 195 °C; yield: 0.39 g (87%). IR (KBr) ($\nu_{\text{max}}$, cm$^{-1}$): 3420, 3307, 3085, 2919, 1671, 1559, 1519, 1339, 1284, 1162, 694. $^1$H NMR (500 MHz, CDCl$_3$): $\delta$H = 3.70 (3 H, s, Me), 4.58 (2 H, d, $^3J = 5.0$ Hz, CH$_2$), 7.26 (2 H, d, $^3J = 7.0$ Hz, Ar), 7.32-7.34 (3 H, m, Ar), 7.47-7.50 (4 H, m, Ar), 7.57 (2 H, t, $^3J = 6.8$ Hz, Ar), 7.87 (2 H, d, $^3J = 9.0$ Hz, Ar), 8.05 (1 H, t, $^3J = 5.0$ Hz, NH), 8.29 (2 H, d, $^3J = 9.0$ Hz, Ar). $^{13}$C NMR (125.7 MHz, CDCl$_3$): $\delta$C = 44.1 (CH$_3$), 52.1 (Me), 111.7 (C), 123.2 (2 CH), 124.6 (2 CH), 127.8 (CH), 127.9 (2 CH), 128.7 (2 CH), 129.2 (3 CH), 130.2 (2 CH), 137.1 (C), 138.5 (C), 139.3 (C), 141.0 (C), 148.0 (C=N), 150.9 (C=O), 163.5 (C=O). MS: m/z (%) = 456 ($M^+$, 1), 363
(8), 350 (10), 322 (22), 134 (25), 106 (100), 91 (10), 59 (23). Anal. Calcd for C$_{25}$H$_{20}$N$_4$O$_5$ (456.14): C, 65.78; H, 4.42; N, 12.27%. Found: C, 65.81; H, 4.53; N, 12.35%.

Methyl 5-(isobutylcarbamoyl)-1-(4-nitrophenyl)-3-phenyl-1H-pyrazole-4-carboxylate (3k): Colorless powder, m.p.: 204 °C; yield: 0.32 g (75%). IR (KBr) ($\nu_{\text{max}}$, cm$^{-1}$): 3422, 3310, 3075, 2929, 1674, 1563, 1529, 1340, 1285, 1172, 691. $^1$H NMR (500 MHz, CDCl$_3$): $\delta_H = 0.93$ (6 H, $d$, $^3J = 6.0$ Hz, Me), 1.86 (1 H, $m$, CH), 3.22 (2 H, $t$, $^3J = 5.1$ Hz, CH$_2$), 3.77 (3 H, $s$, Me), 7.47-7.50 (4 H, $m$, Ar), 7.57 (2 H, $t$, $^3J = 6.8$ Hz, Ar), 7.87 (2 H, $d$, $^3J = 9.0$ Hz, Ar), 8.08 (1 H, $t$, $^3J = 5.1$ Hz, NH). 8.29 (2 H, $d$, $^3J = 9.0$ Hz, Ar). $^{13}$C NMR (125.7 MHz, CDCl$_3$): $\delta_C = 20.0$ (Me), 28.2 (CH), 47.4 (CH$_2$), 51.9 (Me), 111.7 (C), 123.1 (2 CH), 124.5 (2 CH), 128.7 (2 CH), 129.2 (2 CH), 130.1 (2 CH), 137.1 (C), 138.5 (C), 139.3 (C), 141.0 (C), 150.8 (C=N), 159.0 (C=O), 163.5 (C=O). MS: $m/z$ (%) = 422 ($M^+$, 1), 363 (8), 350 (10), 322 (22), 263 (25), 100 (100), 91 (10), 72 (27). Anal. Calcd for C$_{22}$H$_{22}$N$_4$O$_5$ (422.16): C, 62.55; H, 5.25; N, 13.26%. Found: C, 62.64; H, 5.36; N, 13.37%.
Methyl 5-(isobutylcarbamoyl)-1,3-diphenyl-1H-pyrazole-4-carboxylate (3a)
Methyl 5-(benzylcarbamoyl)-3-(4-chlorophenyl)-1-phenyl-1H-pyrazole-4-carboxylate (3b)
Ethyl 5-(benzylcarbamoyl)-3-(4-chlorophenyl)-1-phenyl-1H-pyrazole-4-carboxylate (3c)
Ethyl 3-(4-chlorophenyl)-1-phenyl-5-((1-phenylethyl)carbamoyl)-1H-pyrazole-4-carboxylate (3d)
Methyl 5-(benzylcarbamoyl)-3-(3-chlorophenyl)-1-phenyl-1H-pyrazole-4-carboxylate (3e)
Methyl 5-(benzylcarbamoyl)-1-phenyl-3-(p-tolyl)-1H-pyrazole-4-carboxylate (3f)
Methyl 5-(benzylcarbamoyl)-3-(2-chlorophenyl)-1-phenyl-1H-pyrazole-4-carboxylate (3g)
Methyl 3-(4-chlorophenyl)-5-(isobutylcarbamoyl)-1-phenyl-1H-pyrazole-4-carboxylate (3h)
Ethyl 5-((4-chlorobenzyl)carbamoyl)-3-(4-chlorophenyl)-1-phenyl-1H-pyrazole-4-carboxylate (3i)
Methyl 5-(benzylcarbamoyl)-3-(4-nitrophenyl)-1-phenyl-1H-pyrazole-4-carboxylate (3j)
Methyl 5-(isobutylcarbamoyl)-1-(4-nitrophenyl)-3-phenyl-1H-pyrazole-4-carboxylate (3k)
Reference:
